Effects of Alcohol and Other Drugs on the Driving Task

Making Live-Saving Decisions

2012

Montana
Office of Public Instruction
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opi.mt.gov

Mod 17 Focus

Alcohol and Other Drugs

Responsibility and Risk Management

- Brain – Under construction
- Effects on brain
- Effects on body
- Alcohol, BAC and elimination
- Other drugs
- Effect of Alcohol and other Drugs on the driver
- DUI related crashes in Montana
- Prevent impaired drivers on the road

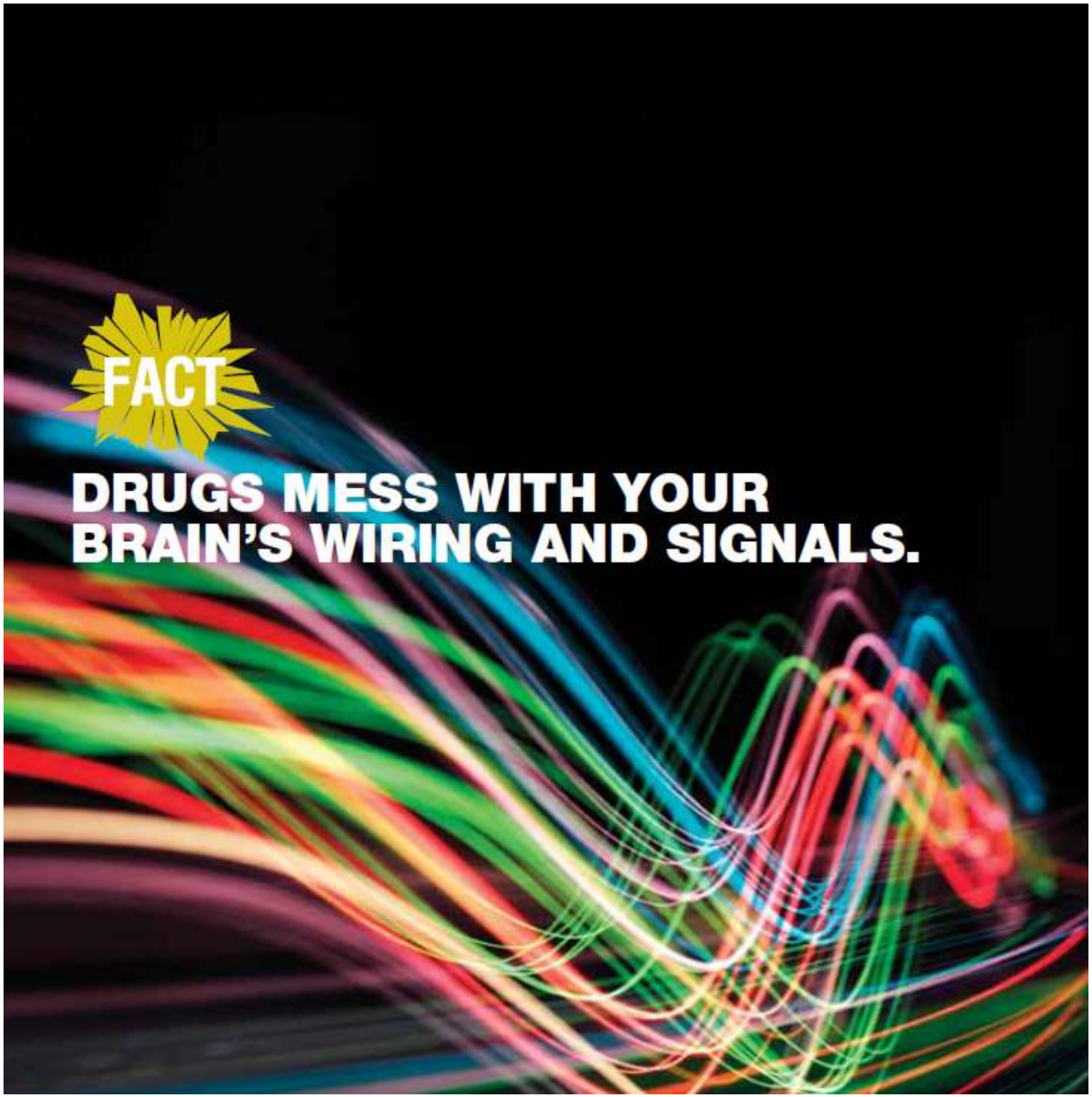
What are the consequences of driving under the influence of alcohol and other drugs?

Different drugs do different things.

But *all* chemicals affect the brain—
that's why drugs make you feel high, low,
speeded up, slowed down,
or see things that aren't there.
They *all* affect your driving.

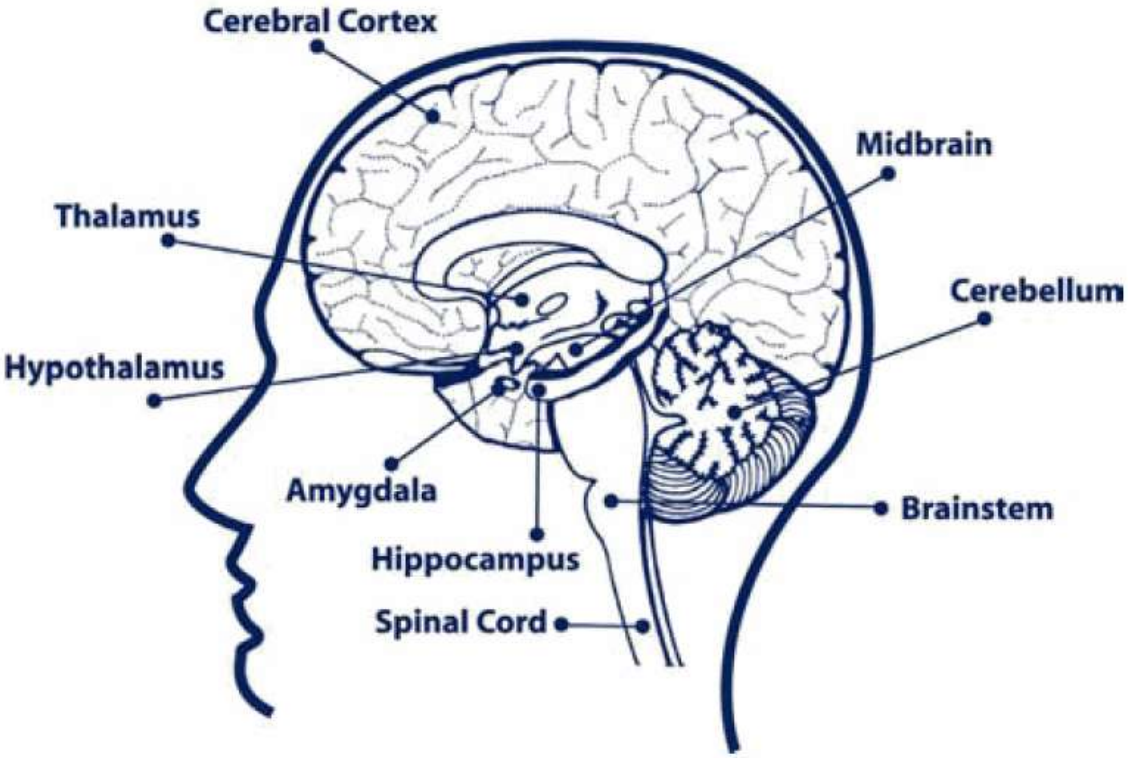
You know drugs make you FUZZY but what do drugs do to your brain?

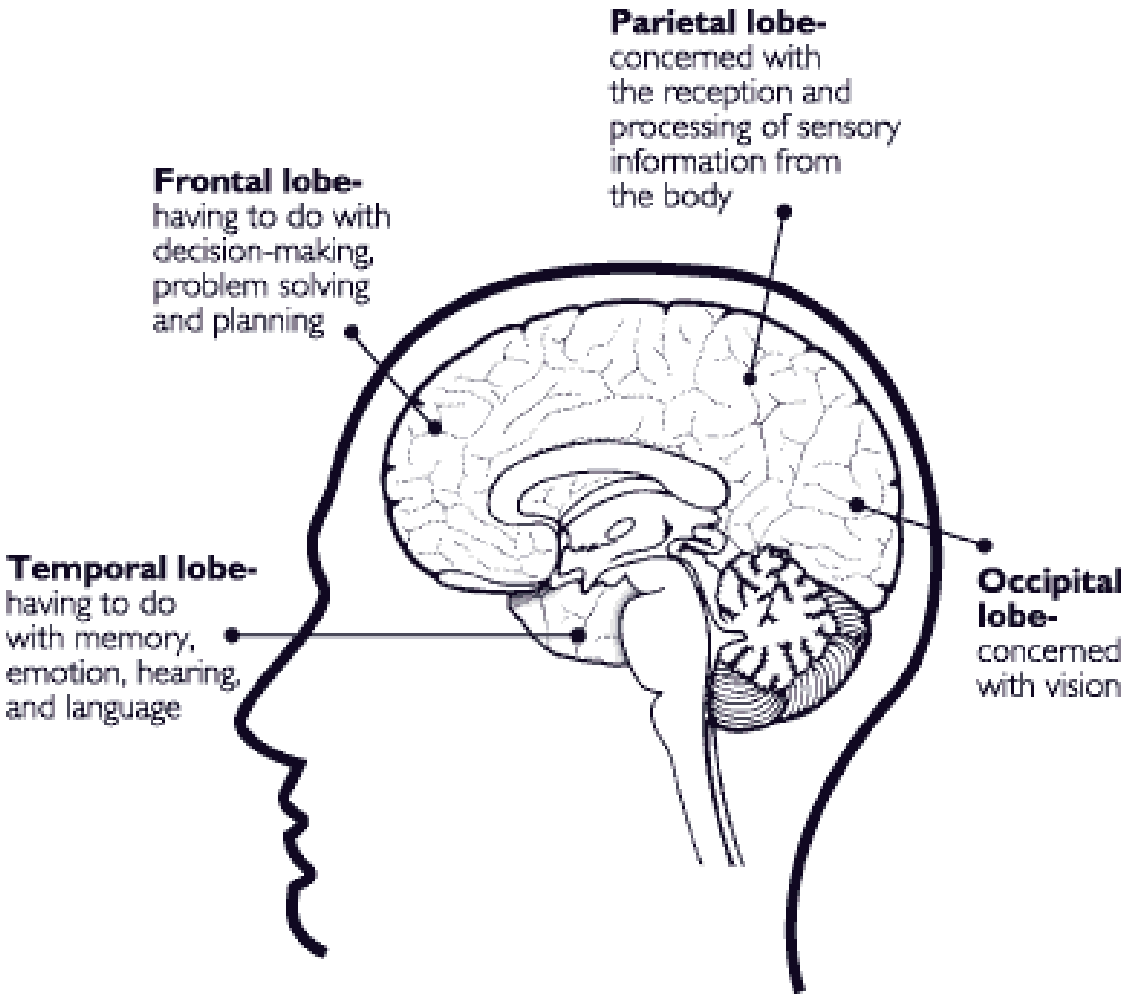
Shatter the Myths NIDA 2011 Drug Facts - http://teens.drugabuse.gov



Shatter the Myths NIDA 2011 Drug Facts - http://teens.drugabuse.gov

The Adolescent Brain is Under Construction


Cerebral Cortex
Midbrain
Thalamus
Cerebellum
Hypothalamus
Amygdala
Brainstem
Hippocampus
Spinal Cord



Which areas of the brain continue to be under construction into adulthood?

DID YOU KNOW?

Repeated drug use can reset the brain's pleasure meter, so that without the drug, you feel hopeless and sad.

Eventually, everyday fun stuff like spending time with friends or playing with your dog doesn't make you happy anymore.

At a party, a friend offers you alcohol and a pill. What would you do and why?

What are the reasons people drink?

THE CULTURE OF DRINKING

1. Quench thirst
2. To get drunk (binge drinking)
3. To enjoy a social setting
4. As part of a religious or traditional ceremony
5. Custom
6. Other?

CRUNCHING THE NUMBERS

WHISKEY 80 Proof

1 oz.
0.40

0.40 ounces of ethyl alcohol

BEER 4.5%

12 oz.
0.045

0.54 ounces of ethyl alcohol

COOLER 5.0%

12 oz.
0.05

0.60 ounces of ethyl alcohol

MARGARITA

Tequila 80 Proof
Triple Sec 60 Proof

1.5 oz.	0.5 oz.
0.4	0.3

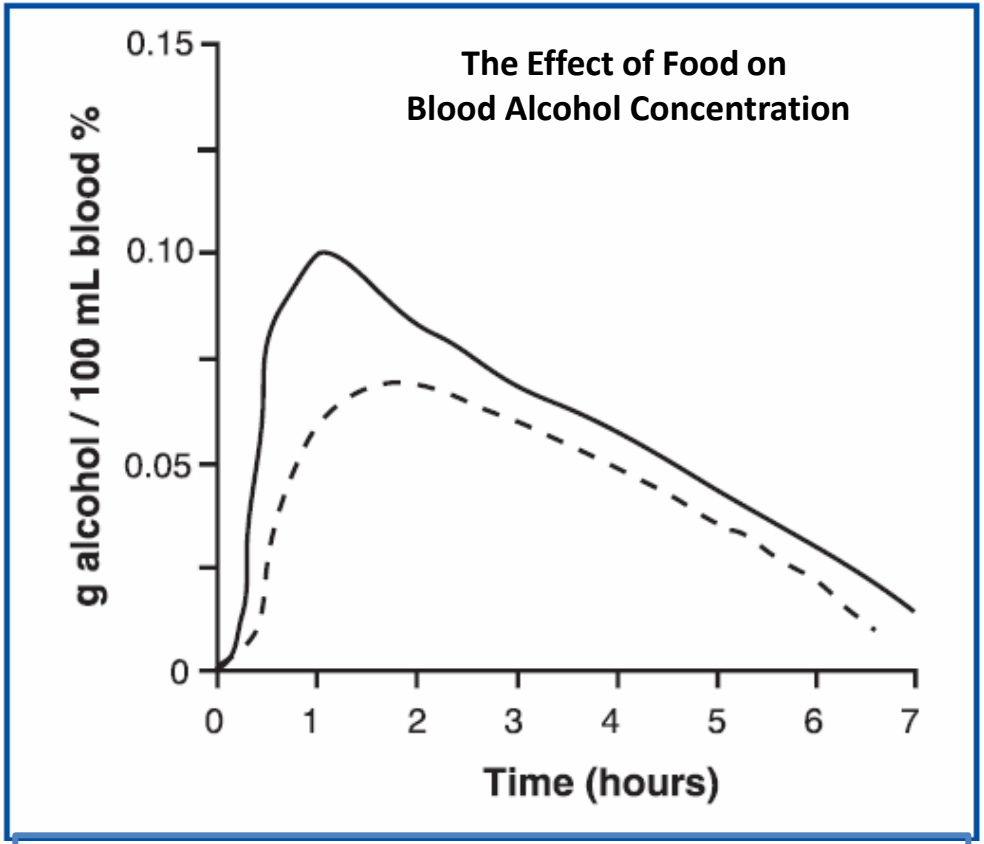
0.6 + 0.15 = 0.75
ounces of ethyl alcohol

MARGARITA	=	**88% more alcohol than a shot of whiskey**
COOLER	=	**50% more alcohol than a shot of whiskey**
BEER	=	**35% more alcohol than a shot of whiskey**

Some Likely Effects on Driving

http://www.cdc.gov/vitalsigns/drinkinganddriving

Elimination Time After Drinking



Concentration of alcohol in the breath and urine mirrors the concentration in the blood.

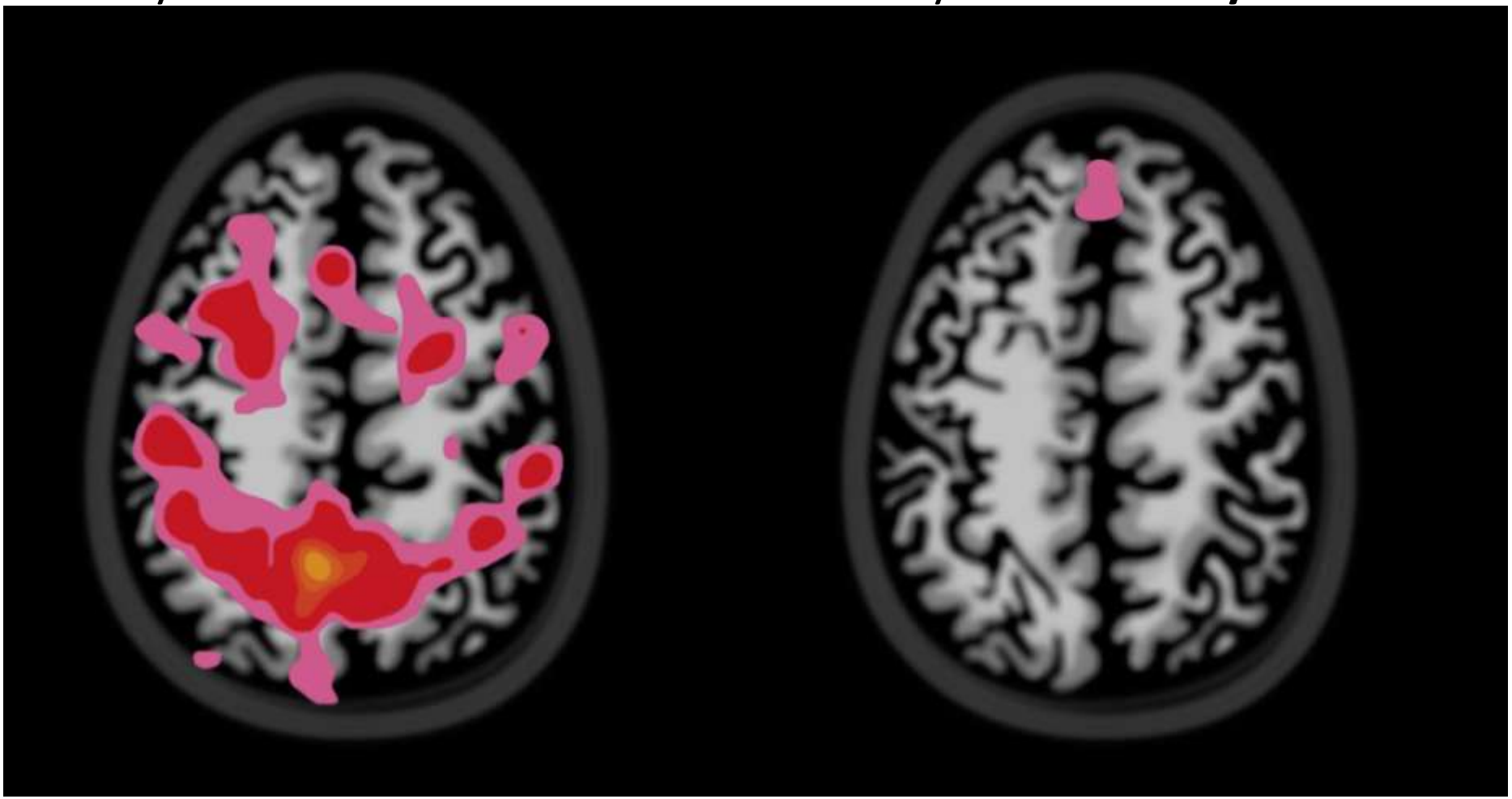
Breathalyzers can detect, measure and calculate a person's blood alcohol concentration (BAC).

Binge Drinking

4 drinks for a woman, 5 for a man CDC

15-year-old **Non-Drinker**

15-year-old **Heavy Drinker**



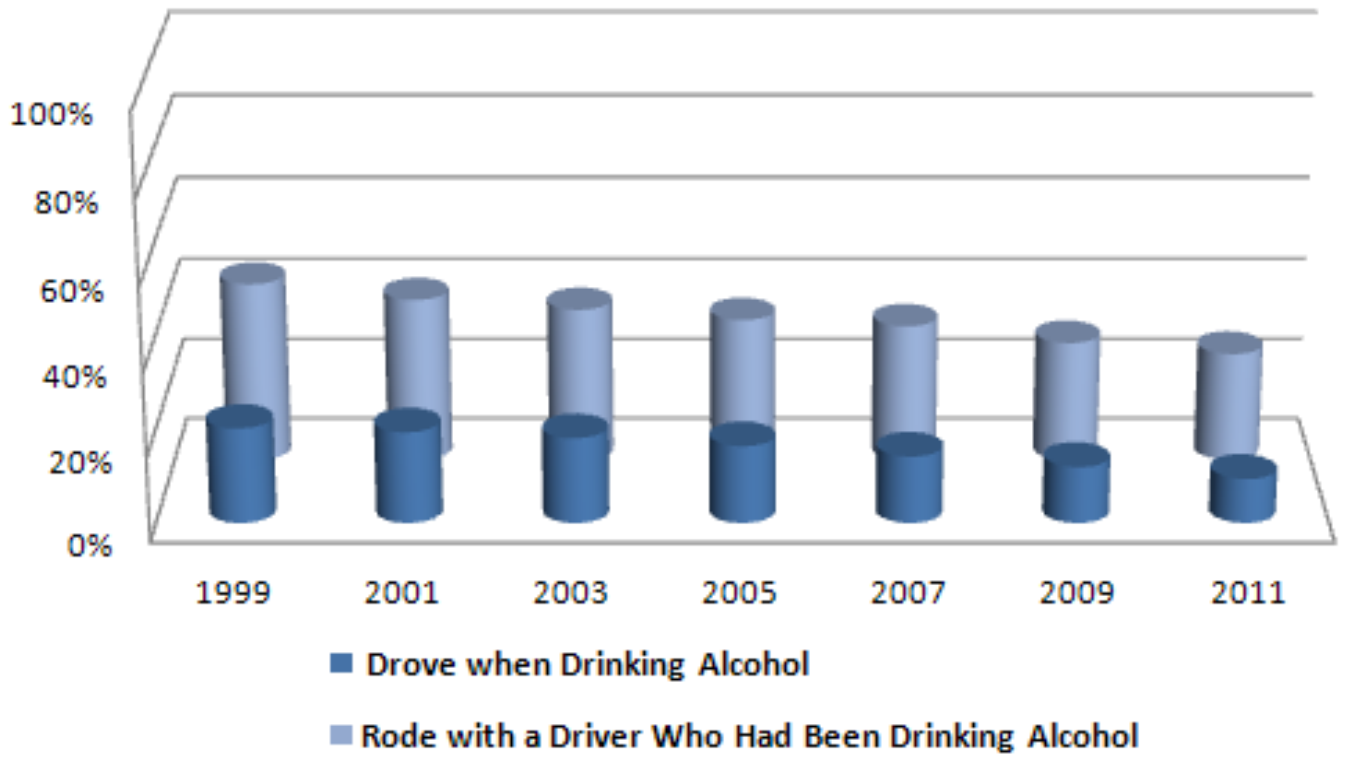
Pink areas indicate brain activity during memory task

Positron emission tomography - PET Scan brain images

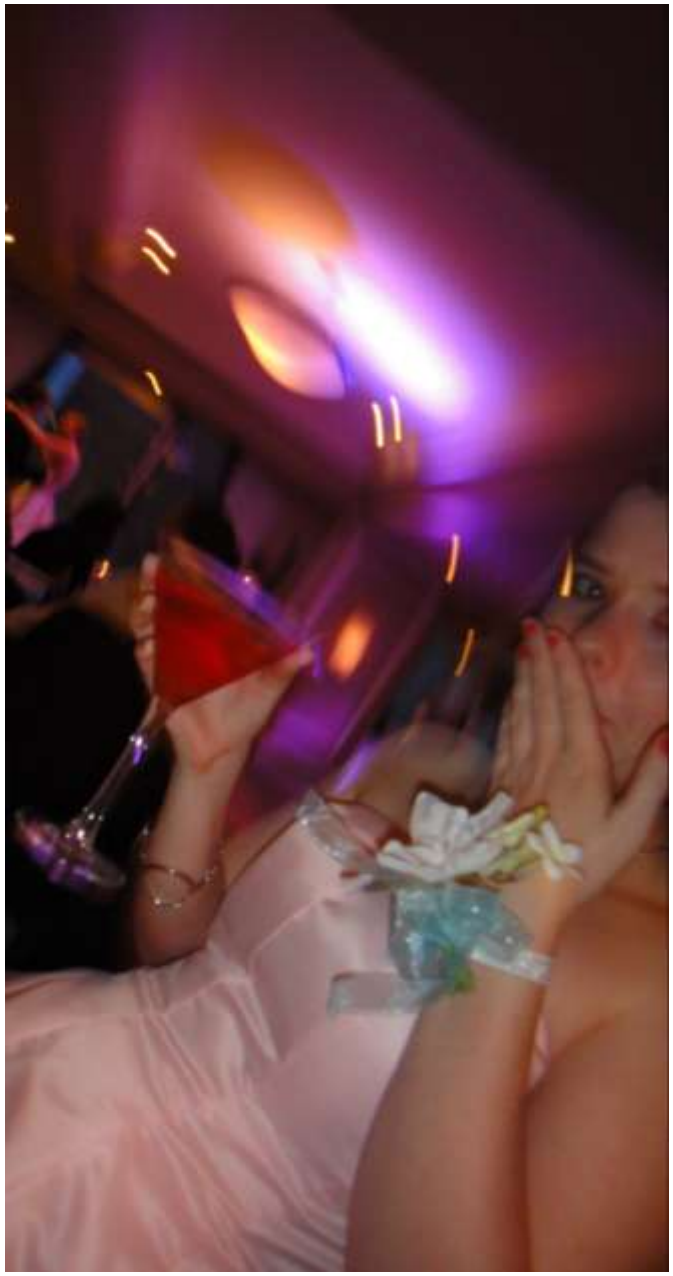
Susan Tapert, PhD - Used with permission

Montana Youth Risk Behavior Survey

The percentage of Montana high school students who during the past 30 days:



	1999	2001	2003	2005	2007	2009	2011
Drove when Drinking Alcohol	22.7%	21.8%	20.4%	18.5%	16.0%	13.5%	10.6%
Rode with a Driver Who Had Been Drinking Alcohol	43.1%	39.3%	36.9%	34.4%	32.9%	28.8%	26.1%



At a party you notice someone passed out on the floor.

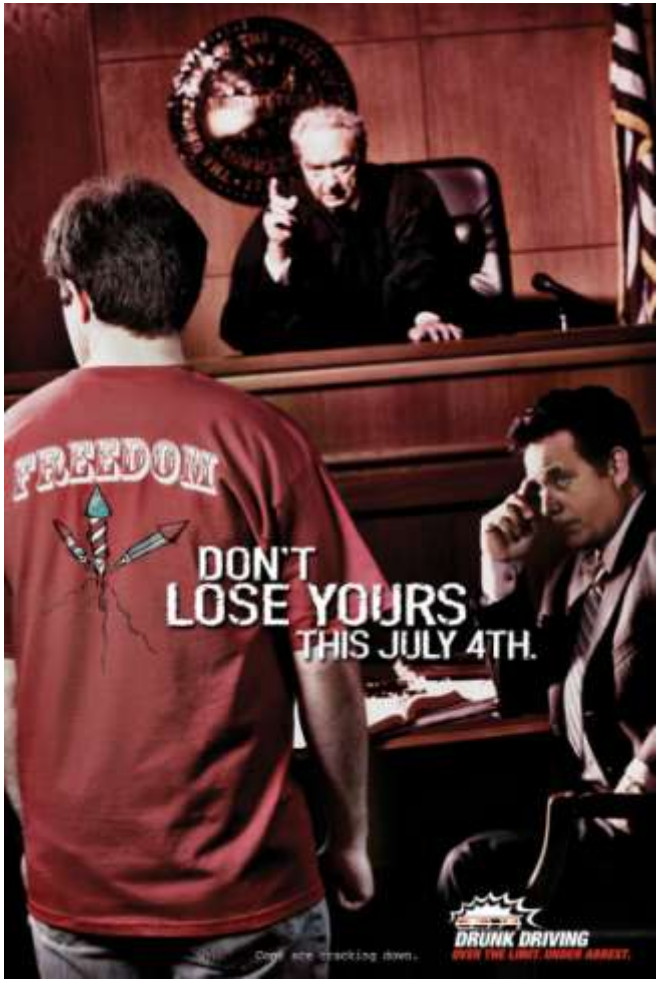
What would you do? Why?

Drinking

and driving can add up to tragic endings.

In the U.S., about 5,000 people under age 21 die each year from injuries caused by underage drinking, nearly 40 percent (1,900) in car crashes

MIP and DUI Consequences

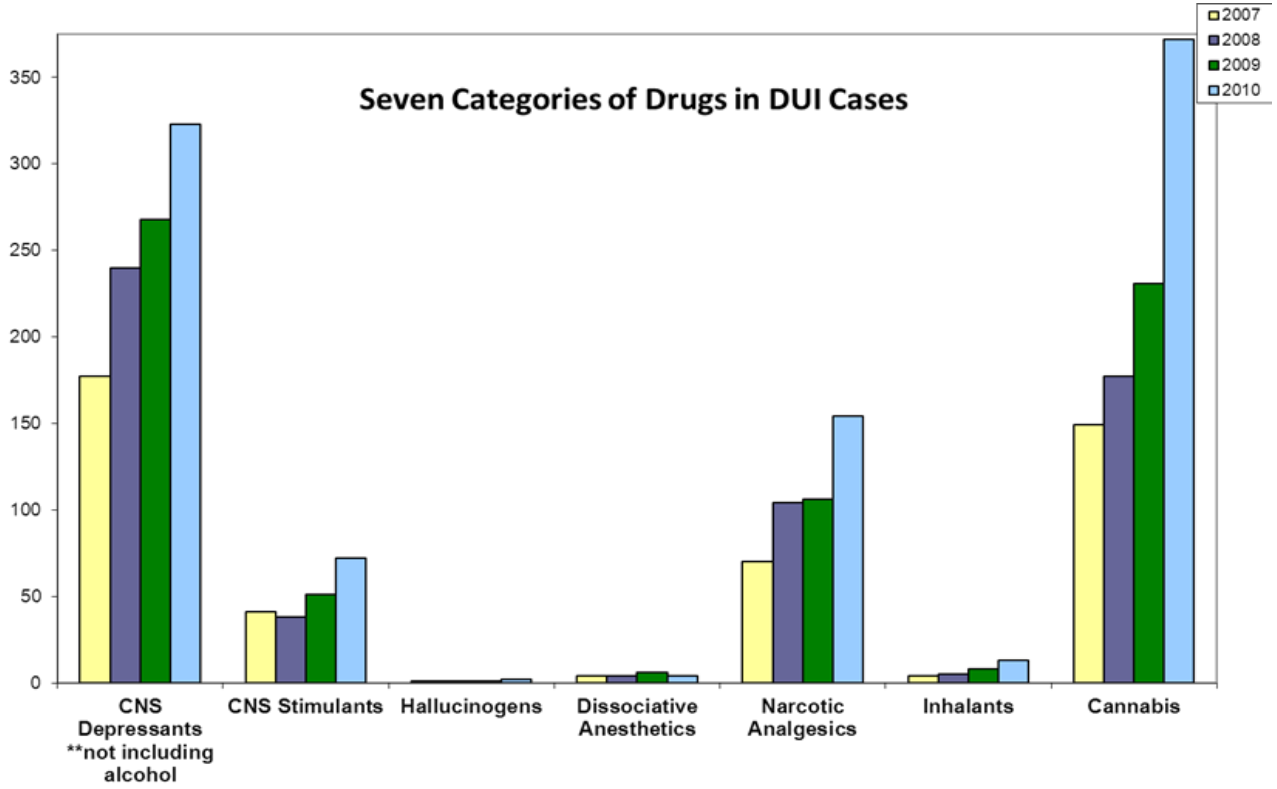


An average drunk driver has driven drunk 80 times before first arrest.[CDC]

When impaired, how will you react when the unexpected happens?

Montana DUI Fatal Crashes

An analysis of Montana fatal vehicle crashes in 2010 revealed that:
38% had drugs involved (up from 32% in 2009)
33% had alcohol involved (down from 36% in 2009)
14% had a mixture of drugs and alcohol involved (same as 2009)




Think it's harmless to
DRIVE HIGH?
In 2009, 18% of drivers killed in a crash tested positive for drugs.*
Research shows that drugs affect a driver's concentration, perception, coordination, and reaction time.
How's that for harmless?
Get the facts at abovetheinfluence.com
*Drug Involvement of Fatally Injured Drivers, U.S. DOT/NHTSA, November 2010.

OTHER DRUGS: Marijuana

- Marijuana is a green, brown, or gray mixture of dried, shredded flowers and leaves of the hemp plant (Cannabis sativa)

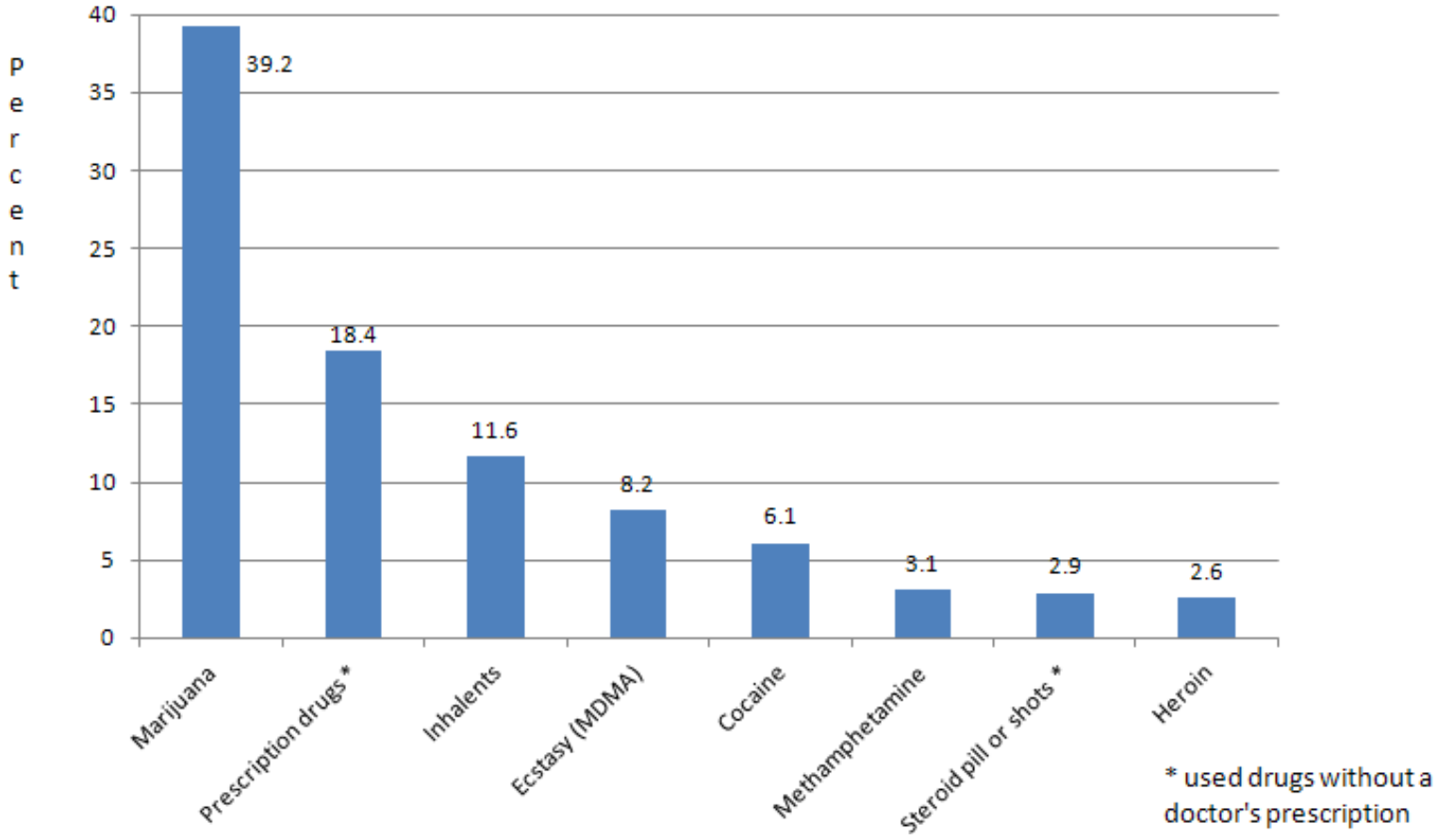
Research shows that drivers on marijuana have slower reaction times, impaired judgment, and problems responding to signals and sounds.

National Institutes of Health 2010

After Alcohol, Marijuana and Prescription Medications account for Most of the Commonly Abused Drugs

2011 Montana Youth Risk Behavior Survey

Percentage of Montana high school students who used these drugs during their life.....



* used drugs without a doctor's prescription

How can prescription drugs be harmful when they are prescribed by doctors?

Taking just one large dose of an opioid
(such as Vicodin, OxyContin or Percocet)
could cause severe breathing complications or death.

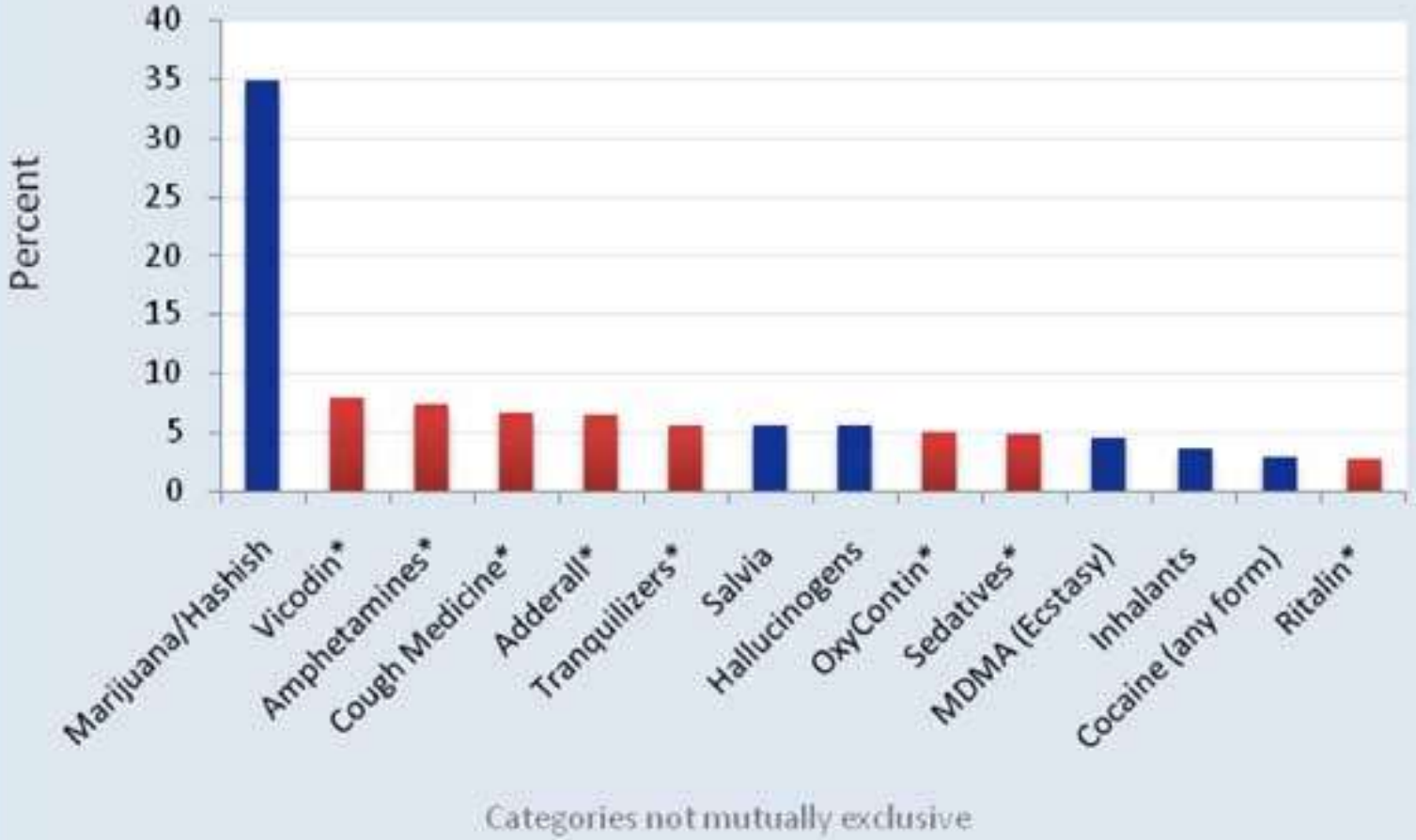
Prescription Drugs

The most commonly abused prescription drugs by teenagers include

- painkillers(e.g. Vicodin; OxyContin)
- tranquilizers, (e.g. Valium)
- and stimulants (e.g. Adderall; Ritalin).

After Marijuana, Prescription and Over-the-Counter Medications* Account for Most of the Commonly Abused Drugs

Prevalence of Past Year Drug Use Among 12th Graders



* Non-medical Use

SOURCE: University of Michigan, 2010 Monitoring the Future Study

Between 2000 and 2009 there was a
91% increase in the poisoning death rate for 15 – 19 year olds,
largely due to prescription drug overdoses

CDC Vital Signs reports

OVER-THE-COUNTER (OTC)

Examples of OTC drugs include

- Aspirin or other pain relievers
- Cold and allergy remedies
- Arthritis and back pain medication

- **Physical effects of OTC drugs**
  - **Drowsiness, dizziness, slowed reaction times, poor judgment**
  - **Always read the labels and know the effects that could occur**

Inhalants

- Inhalant vapors displace oxygen in the lungs.
- Solvents or aerosol sprays can cause irregular or rapid heart rhythms and can lead to heart failure and death within minutes.
- This "sudden sniffing death" is particularly associated with the abuse of butane, propane, and chemicals in aerosols.
- While high on inhalants, people also can die by suffocation, choking on their own vomit or by fatal injury from accidents, including car crashes.

http://teens.drugabuse.gov/facts

OTHER DRUGS: MDMA or Ecstasy

3,4-methylenedioxymethamphetamine

- MDMA is chemically similar to stimulants and hallucinogens and can make a person feel energized and generate a sense of well-being.
- It can also interfere with the body's ability to regulate temperature, leading to hyperthermia (increased body temperature) and dehydration which can cause heart and kidney failure.
- MDMA can also impair memory and generate depression for several days after taking it.

OTHER DRUGS: Cocaine

- Cocaine is a white powder that comes from the leaves of the South American coca plant
- Highly addictive central nervous system stimulant increases risk of heart attacks, respiratory failure, strokes and seizures
- Crack is a form of cocaine that has been chemically altered so that it can be smoked
- Cocaine is the powdered form of the drug, usually sniffed up the nose, but sometimes diluted and injected into a vein.

OTHER DRUGS: Methamphetamine

Commonly known as:

- **Meth**
- **Speed**
- **Chalk**
- **Crystal**
- **Crank**
- **Glass**
- **Ice**

Short-term effects:

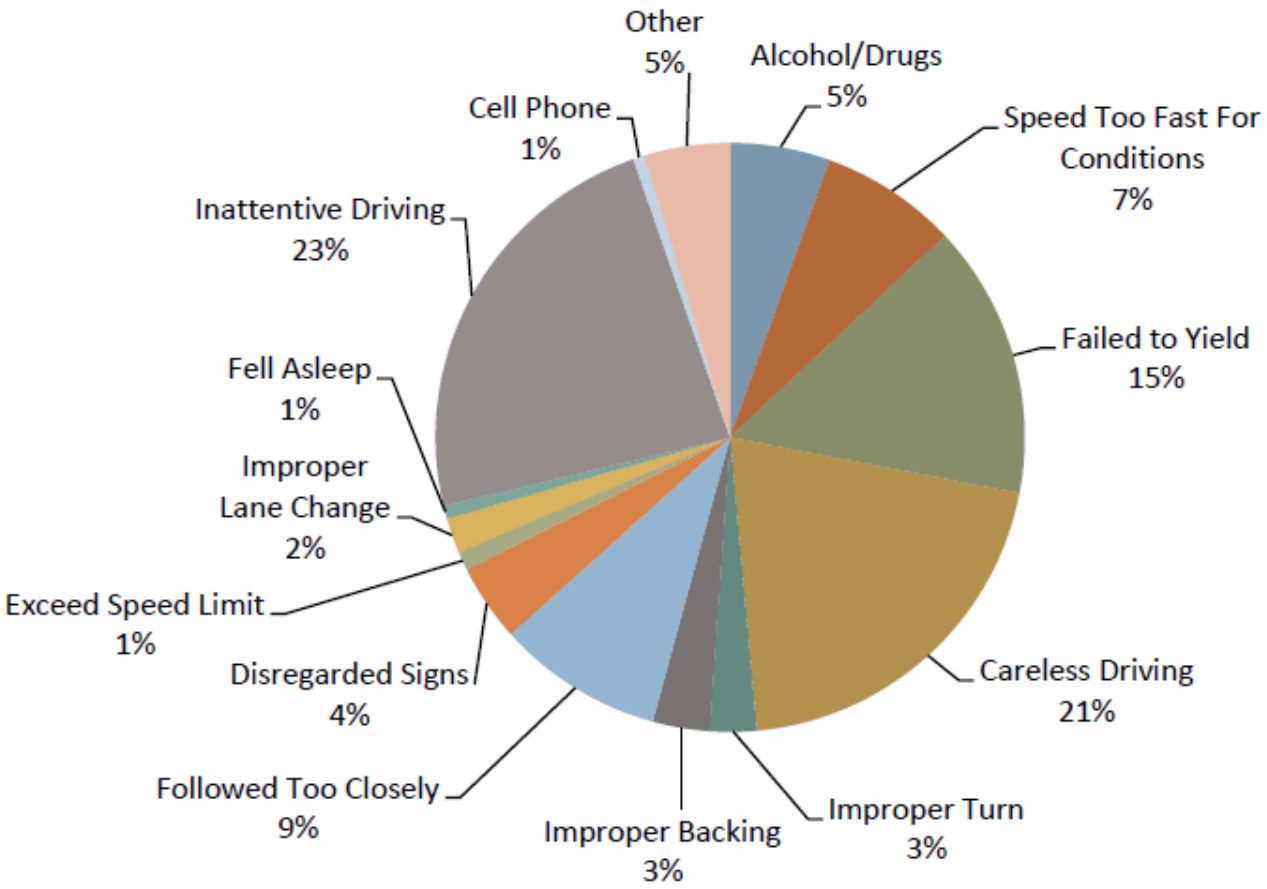
Dizziness
Twitching
Tremors
Itchy skin
Constipation
Dry mouth
Restlessness
Irritability
Violence
Obsessive compulsive behavior
Hallucinations
Skin deterioration
Open sores on the skin often caused by compulsive scratching

Long-term effects:

Heart disease
Psychosis
Anxiety
Brain damage
Impaired memory
Impaired attention

How would you convince a friend impaired by alcohol or other drugs to not drive and to give you the keys?

Driver's Contributing Circumstances in Crashes (2009 Data)



Source: Montana Department of Transportation – Safety Management System

What are some ways to make smarter choices?

What choice will you make?

http://teens.drugabuse.gov/peerx/

Most Montana teens – 89.4% don't drink and drive

What else do you need to do to stay safe on the road?